



SEQUENCE LISTING

<110> BOYLE, WILLIAM
LACEY, DAVID
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CHANG, MING-SHI
SENALDI, GIORGIO

<120> COMBINATION THERAPY FOR CONDITIONS LEADING TO BONE LOSS

<130> A-378CIP5

<140> US 09/613,591

<141> 2000-07-10

<150> US 09/457,647

<151> 1999-12-09

<150> US 09/350,670

<151> 1999-07-09

<150> US 08/706,945

<151> 1996-09-03

<150> US 08/577,788

<151> 1995-12-22

<160> 168

<170> PatentIn version 3.0

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36

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<211> 16

<212> DNA

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<220>

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<222> ()..()

<223> ds oligonucleotide adapter

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tcgacccacg cgtccg

16

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<212> DNA
<213> Artificial Sequence

<220>
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<222> ()..()
<223> ds oligonucleotide adapter

<400> 3
gggtgcgag gc

12

<210> 4
<211> 18
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<213> Artificial Sequence

<220>
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<400> 4
tgtaaacga cggccagt

18

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<212> DNA
<213> Artificial Sequence

<220>
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<400> 5
caggaaacag ctatgacc

18

<210> 6
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<220>
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<223> T3 primer

<400> 6
caattaaccc tcactaaagg 20

<210> 7
<211> 23
<212> DNA
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<400> 7
gcattatgac ccagaaaccg gac 23

<210> 8
<211> 23
<212> DNA
<213> Rattus rattus

<400> 8
aggtagcgcc cttcctcaca ttc 23

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
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<223> PCR primer

<400> 9
gactagtccc acaatgaaca agtggctgtg 30

<210> 10
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<220>
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<222> ()..()
<223> PCR primer

<400> 10
ataagaatgc ggccgctaaa ctatgaaaca gcccagtgac cattc 45

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 11
gcctctagaa agagctggga c 21

<210> 12
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 12
cgccgtgttc catttatgag c 21

<210> 13
<211> 24
<212> DNA
<213> Rattus rattus

<400> 13
atcaaaggca gggcatactt cctg 24

<210> 14
<211> 24
<212> DNA
<213> Rattus rattus

<400> 14
gttgcactcc tgtttcacgg tctg 24

<210> 15
<211> 24
<212> DNA
<213> Rattus rattus

<400> 15
caagacacct tgaagggcct gatg 24

<210> 16
<211> 24
<212> DNA
<213> Rattus rattus

<400> 16
taactttttac agaagagcat cagc 24

<210> 17
<211> 33
<212> DNA
<213> Rattus rattus

<400> 17
agcgcggccg catgaacaag tggctgtgct gcg 33

<210> 18
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<212> DNA
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<400> 18
agctctagag aaacagccca gtgaccattc c 31

<210> 19
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<212> DNA
<213> Rattus rattus

<400> 19
gtgaagctgt gcaagaacct gatg 24

<210> 20
<211> 24
<212> DNA
<213> Rattus rattus

<400> 20
atcaaaggca gggcatactt cctg 24

<210> 21
<211> 24
<212> DNA
<213> Homo sapiens

<400> 21
cagatcctga agctgctcag ttg 24

<210> 22
<211> 33
<212> DNA
<213> Homo sapiens

<400> 22
agcgcggccg cggggaccac aatgaacaag ttg 33

<210> 23
<211> 33
<212> DNA
<213> Homo sapiens

<400> 23
agctctagaa ttgtgaggaa acagctcaat ggc 33

<210> 24
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 24
atagcggccg ctgagcccaa atcttgtgac aaaactcac 39

<210> 25
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
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<222> ()..()
<223> PCR primer

<400> 25
tctagagtcg acttatcatt taccggaga cagggagagg ctctt 45

<210> 26
<211> 38
<212> DNA
<213> Mus musculus

<400> 26
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 27
<211> 43
<212> DNA
<213> Mus musculus

<400> 27
cctctgcggc cgctaagcag cttattttca cggattgaac ctg 43

<210> 28
<211> 38
<212> DNA
<213> Mus musculus

<400> 28
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 29
<211> 24
<212> DNA
<213> Homo sapiens

<400> 29
tccgtaagaa acagcccagt gacc 24

<210> 30
<211> 31
<212> DNA
<213> Mus musculus

<400> 30
cctctgcggc cgctgttgca tttcctttct g 31

<210> 31
<211> 19
<212> PRT
<213> Mus musculus

<400> 31

Glu Thr Leu Pro Pro Lys Tyr Leu His Tyr Asp Pro Glu Thr Gly His
1 5 10 15

Gln Leu Leu

<210> 32
<211> 21
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<213> Mus musculus

<400> 32
tcccttgccc tgaccactct t 21

<210> 33
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<400> 33

cctctgcggc cgcacacacg ttgtcatgtg ttgc 34

<210> 34
<211> 21
<212> DNA
<213> Mus musculus

<400> 34
tcccttgccc tgaccactct t 21

<210> 35
<211> 34
<212> DNA
<213> Mus musculus

<400> 35
cctctgcggc cgccttttgc gtggcttctc tggt 34

<210> 36
<211> 37
<212> DNA
<213> Homo sapiens

<400> 36
cctctgagct caagcttggt ttccggggac cacaatg 37

<210> 37
<211> 38
<212> DNA
<213> Homo sapiens

<400> 37
cctctgcggc cgctaagcag cttattttta ctgaatgg 38

<210> 38
<211> 37
<212> DNA
<213> Homo sapiens

<400> 38
cctctgagct caagcttggt ttccggggac cacaatg 37

<210> 39
<211> 33
<212> DNA
<213> Homo sapiens

<400> 39
cctctgcggc cgccagggtg acatctattc cac 33

<210> 40
<211> 35
<212> DNA
<213> Mus musculus

<400> 40
ccgaagcttc caccatgaac aagtggctgt gctgc 35

<210> 41
<211> 40
<212> DNA
<213> Mus musculus

<400> 41
cctctgtcga ctattataag cagcttattt tcacggattg 40

<210> 42
<211> 21
<212> DNA
<213> Mus musculus

<400> 42
tcccttgccc tgaccactct t 21

<210> 43
<211> 35
<212> DNA
<213> Mus musculus

<400> 43
cctctgtcga cttaacacac gttgtcatgt gttgc 35

<210> 44
<211> 21
<212> DNA
<213> Mus musculus

<400> 44
tcccttgccc tgaccactct t 21

<210> 45
<211> 35
<212> DNA
<213> Mus musculus

<400> 45
cctctgtcga cttacttttg cgtggcttct ctggt 35

<210> 46

<211> 1548
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Human sequence modified to include unique AatII and SacII sites.

<400> 46
tgcacgcatt gcatacgtac cagaggggta cgctctcatc ccttgacggg ccgtagttta 60
ttttgctttc cgagtcagct ttctgacccg gaaagcaaaa tagacaacaa acagccactt 120
gcgagaggac tcatacctgtt taggcggccc tcgcctaaac ttgcaacgct tcgttgccgg 180
gcctcccacc gcccgtcctg cgggcgggtat ttgacgggtcc gtagtttaaat tcgtcttccg 240
gtaggactgc ctaccggaaa aacgcaaaga tgtttgagaa aacaaataaa aagattttatg 300
taagtttata cctgcagcat gaattgaaaa ttccataccc gttagttaac gaggacaatt 360
ttaacgaaat ctttatgaaa ccgtcgccaa acaacataac tcaaagtaaa cgcgtaacca 420
atttaccttt cactggcacg cgaatgatgt cggattataa aaactttata ggggttctcga 480
aaaaggaagc gtacgggtgc gatttgtaag aaaaagagaa aaccaattta gcaacaaact 540
aaataataaa cgatataaat aaaaagctat taatagttga tctcttcctt gttaattacc 600
atacaagtat gtgcgtacat ttttatattga tagatatatc aacagaaaga gacttacacg 660
ttttgattcg taaggcttcg gtaataatcg tcatacttat ccctttgatt tgggtcacta 720
ttctggacta ctaaagcgaa gaaattaatg taaacctcta aaaaataaat gtcgtaacaa 780
aagtttatat aagggttaatt agccacttac taacctcaat cttattagat gatatcctag 840
tataaaataa tttaatcgca gtagtattat aacggaggta aaaaatccca ttaataggtc 900
ttaactttat agtctaaatt ggtatcttac tcctatttac tagcgctcat ttattataag 960
tgttacatgg taaaatcagt atagtctatt cgtaactaat tatagtaata acgaagatgt 1020
ccgaaattaa aataattaat aagacattca cagcagccgt aaatacagaa agtatgggta 1080
gagaaatagg aatggataac aaacagcggt caaacgcac aatatatagt aattttgcca 1140
ttatctaact gtaaactaag attatttaac ctaaaaacag tgtgataata tagcgaactt 1200
tatgttaaca aattgtattc atggacatcc tagcatgtcc aaatgcgttc ttttaccaaa 1260
caatatcagc taattagcta aactaagatc taaacaaaat tgattaattt cctccttatt 1320
gtataccaat tgcgcaacct taagctcgag tgatcacagc tggacgtccc atggtacctt 1380

cgaatgagct cctaggcgcc tttcttcttc ttcttcttct ttcgggcttt ccttcgactc 1440
aaccgacgac ggtggcgact cgttattgat cgtattgggg aaccccgag atttgcccag 1500
aactcccaa aaaacgactt tcctccttgg cgagaagtgc gagaagtg 1548

<210> 47
<211> 48
<212> DNA
<213> Homo sapiens

<400> 47
ccggcgga tttatcacac agcagctgat gagaagtttc ttcacca 48

<210> 48
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 48
cgatttgatt ctagaaggag gaataacata tgggtaacgc gttggaattc ggtac 55

<210> 49
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 49
taaactaaga tcttcctcct tattgtatac caattgcgca accttaagc 49

<210> 50
<211> 1546
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Human sequence modified to include unique AatII and SacII sites.

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cgaaaggctc agtcgaaaga ctgggccttt cgttttatct gttgtttgtc ggtgaacgct	120
ctcctgagta ggacaaatcc gccgggagcg gatttgaacg ttgcgaagca acggcccgga	180
gggtggcggg caggacgccc gccataaact gccaggcatc aaattaagca gaaggccatc	240
ctgacggatg gccttttttg gtttctacaa actcttttgt ttatttttct aaatacatc	300
aaatatggac gtcgtactta actttttaaag tatgggcaat caattgctcc tgttaaaatt	360
gcttttagaaa tactttggca gcggtttgtt gtattgagtt tcatttgccg attggttaaa	420
tggaaagtga ccgtgcgctt actacagcct aatatttttg aaatatccca agagcttttt	480
ccttcgcatg cccacgctaa acattctttt tctcttttgg ttaaatacgtt gtttgattta	540
ttatttgcta tatttatttt tcgataatta tcaactagag aaggaacaat taatggtatg	600
ttcatacacg catgtaaaaa taaactatct atatagttgt ctttctctga atgtgcaaaa	660
ctaagcattc cgaagccatt attagcagta tgaataggga aactaaaccc agtgataaga	720
cctgatgatt tcgcttcttt aattacattt ggagattttt tatttacagc attgttttca	780
aatatatcc aattaatcgg tgaatgattg gagttagaat aatctactat aggatcatat	840
tttattaaat tagcgtcatc ataattttgc ctccattttt tagggtaatt atccagaatt	900
gaaatatcag atttaaccat agaatgagga taaatgatcg cgagtaaata atattcacia	960
tgtaccattt tagtcatatc agataagcat tgattaatat cattattgct tctacaggct	1020
ttaattttat taattattct gtaagtgtcg tcggcattta tgtctttcat acccatctct	1080
ttatccttac ctattgtttg tcgcaagttt tgcgtgttat atatcattaa aacggtaata	1140
gattgacatt tgattctaata aaattggatt tttgtcacac tattatatcg cttgaaatac	1200
aattgtttta cataagtacc tgtaggatcg tacaggttta cgcaagaaaa tggtttgta	1260
tagtcgatta atcgatttga ttctagattt gttttaacta attaaaggag gaataacata	1320
tggttaacgc gttggaattc gagctcacta gtgtcgacct gcagggtacc atggaagctt	1380
actcgaggat ccgcggaaag aagaagaaga agaagaaagc ccgaaaggaa gctgagttgg	1440
ctgctgccac cgctgagcaa taactagcat aacccttgg ggctctaaa cgggtcttga	1500
ggggtttttt gctgaaagga ggaaccgctc ttcacgctct tcacgc	1546

<210> 51
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 51
tatgaaacat catcaccatc accatcatgc tagcggttaac gcggttg 47

<210> 52
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 52
actttgtagt agtggttagtg gtagtacgat cgcaattgcg caaccttaa 49

<210> 53
<211> 141
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 53
ctaattccga tctcacctac caaacaatgc cccctgcaa aaaataaatt catataaaaa 60
acatacagat aaccatctgc ggtgataaat tatctctggc ggtggtgaca taaataccac 120
tggcggtgat actgagcaca t 141

<210> 54
<211> 147
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 54
tgcagattaa ggcgagagtg gatggtttgt tacgggggga cgttttttat ttaagtatat 60
tttttgtatg tctattggta gacgccacta tttaatagag accgccacaa ctgtatttat 120

ggtgaccgcc actatgactc gtgtagc 147

<210> 55
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 55
cgatttgatt ctagaaggag gaataacata tggttaacgc gttggaattc ggtac 55

<210> 56
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 56
taaactaaga tcttctctct tattgtatac caattgcgca accttaagc 49

<210> 57
<211> 668
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 57
tgcacgcatt gcatacgtac cagaggggta cgctctcatc ccttgacggt ccgtagttta 60
ttttgctttc cgagtcagct ttctgacccg gaaagcaaaa tagacaacaa acagccactt 120
gcgagaggac tcatacctgtt taggcggccc tcgcctaaac ttgcaacgct tcgttgccgg 180
gcctcccacc gcccgctctg cgggcggtat ttgacgggtc gtagtttaaat tcgtcttccg 240
gtaggactgc ctaccggaaa aacgcaaaga tgtttgagaa aacaaataaa aagatttatg 300
taagtttata cctgcagagt attaaaaatt ttttaagtaa actgtttacg attttaagaa 360
ctaattataa gagttaacac tcgcgagtgt taaatagcta aactaagatc taaactcaat 420

tgattaat	ttt	cctccttatt	gtataccaat	tgcgcaacct	taagctcgag	tgatcacagc	480
tggacgtccc	atggtacctt	cgaatgagct	cctagggcgcc	tttcttcttc	ttcttcttct		540
ttcggggcttt	ccttcgactc	aaccgacgac	ggcggcgact	cggtattgat	cgtattgggg		600
aaccccgagg	atttgcccag	aactccccaa	aaaacgactt	tcctccttgg	cgagaagtgc		660
gagaagtgc							668

<210> 58
 <211> 726
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> misc_feature
 <222> ()..()
 <223> Part of oligonucleotide duplex used in vector formation.

<400> 58						
gcgtaacgta	tgcatggtct	cccatgcga	gagtagggaa	ctgccaggca	tcaataaaaa	60
cgaaaggctc	agtcgaaaga	ctgggccttt	cgttttatct	gttgtttgtc	ggtgaacgct	120
ctcctgagta	ggacaaatcc	gccgggagcg	gatttgaacg	ttgcgaagca	acggcccggg	180
gggtggcggg	caggacgccc	gccataaact	gccaggcatc	aaattaagca	gaaggggcct	240
cccaccgccc	gtcctgcggg	cggatattga	cggtcgtag	tttaattcgt	cttcgccatc	300
ctgacggatg	gcctttttgc	gtttctacaa	actcttttgt	ttatttttct	aaatacatct	360
aaatatggac	gtctcataat	ttttaaaaaa	ttcatttgac	aaatgctaaa	attcttgatt	420
aatattctca	attgtgagcg	ctcacaat	atcgatttga	ttctagattt	gttttaacta	480
attaaaggag	gaataacata	tgggtaacgc	gttggaattc	gagctcacta	gtgtcgacct	540
gcaggggtacc	atggaagctt	actcgaggat	ccgcgggaaag	aagaagaaga	agaagaaagc	600
ccgaaaggaa	gctgagttgg	ctgctgccac	cgctgagcaa	taactagcat	aacccttgg	660
ggcctctaaa	cgggtcttga	ggggtttttt	gctgaaagga	ggaaccgctc	ttcacgctct	720
tcacgc						726

<210> 59
 <211> 44
 <212> DNA
 <213> Homo sapiens

<400> 59

tacgcactgg atccttataa gcagcttatt tttactgatt ggac 44

<210> 60
<211> 27
<212> DNA
<213> Homo sapiens

<400> 60
gtcctcctgg tacctaccta aaacaac 27

<210> 61
<211> 54
<212> DNA
<213> Homo sapiens

<400> 61
tatggatgaa gaaacttctc atcagctgct gtgtgataaa tgtccgccgg gtac 54

<210> 62
<211> 19
<212> PRT
<213> Homo sapiens

<400> 62

Met Asp Glu Glu Thr Ser His Gln Leu Leu Cys Asp Lys Cys Pro Pro
1 5 10 15

Gly Thr Tyr

<210> 63
<211> 84
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Sequence used in vector formation using human sequence with E.

coli codons.

<400> 63
tatggaaact tttcctccaa aatatcttca ttatgatgaa gaaacttctc atcagctgct 60

gtgtgataaa tgtccgccgg gtac 84

<210> 64
<211> 78
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Sequence used in vector formation using human sequence with E. coli
codons.

<400> 64
ccggcggaca tttatcacac agcagctgat gagaagtttc ttcatacataa tgaagatatt 60
ttggaggaaa agttttcca 78

<210> 65
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 65
tacgcactgg atccttataa gcagcttatt ttcacggatt gaac 44

<210> 66
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 66
gtgctcctgg tacctaccta aaacagcact gcacagtg 38

<210> 67
<211> 84
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 67
tatggaaact ctgcctccaa aatacctgca ttacgatccg gaaactgggtc atcagctgct 60
gtgtgataaaa tgtgctccgg gtac 84

<210> 68
<211> 78
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 68
ccggagcaca tttatcacac agcagctgat gaccagtttc cggatcgtaa tgcaggtatt 60
ttggaggcag agtttcca 78

<210> 69
<211> 54
<212> DNA
<213> Mus musculus

<400> 69
tatggacca gaaactggtc atcagctgct gtgtgataaa tgtgctccgg gtac 54

<210> 70
<211> 48
<212> DNA
<213> Mus musculus

<400> 70
ccggagcaca tttatcacac agcagctgat gaccagtttc tgggtcca 48

<210> 71
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 71
tatgaaagaa actctgcctc caaaatacct gcattacgat ccggaaactg gtcacagct 60
gctgtgtgat aaatgtgctc cgggtac 87

<210> 72
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 72
ccggagcaca tttatcacac agcagctgat gaccagtttc cggatcgtaa tgcagggtatt 60
ttggaggcag agttttctttc a 81

<210> 73
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer

<400> 73
gttctcctca tatgaaacat catcaccatc accatcatga aactctgcct ccaaaatacc 60
tgcattacga t 71

<210> 74
<211> 43
<212> DNA
<213> Mus musculus

<400> 74
gttctcctca tatgaaagaa actctgcctc caaaatacct gca 43

<210> 75
<211> 76
<212> DNA
<213> Mus musculus

<400> 75
tacgcactgg atccttaatg atggtgatgg tgatgatgta agcagcttat tttcacggat 60
tgaacctgat tcccta 76

<210> 76
<211> 47
<212> DNA
<213> Mus musculus

<400> 76
gttctcctca tatgaaatac ctgcattacg atccggaaac tgggtcat 47

<210> 77
<211> 43
<212> DNA
<213> Homo sapiens

<400> 77
gttctcctat taatgaaata tcttcattat gatgaagaaa ctt 43

<210> 78
<211> 40
<212> DNA
<213> Homo sapiens

<400> 78
tacgcactgg atccttataa gcagcttatt ttactgatt 40

<210> 79
<211> 40
<212> DNA
<213> Mus musculus

<400> 79
gttctcctca tatggaaact ctgcctccaa aatacctgca 40

<210> 80
<211> 43
<212> DNA
<213> Mus musculus

<400> 80
tacgcactgg atccttatgt tgcatttcct ttctgaatta gca 43

<210> 81
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 81
ccggaaacag ataatgag 18

<210> 82
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 82
gatcctcatt atctgttt 18

<210> 83
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 83
ccggaaacag agaagccacg caaaagtaag 30

<210> 84
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 84
gatccttact tttgcgtggc ttctctgttt 30

<210> 85
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 85
tatgttaatg ag 12

<210> 86
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 86
gatcctcatt aaca 14

<210> 87
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 87
tatgttccgg aaacagttaa g 21

<210> 88
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 88
gatccttaac tgtttccgga aca 23

<210> 89
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 89
tatgttccgg aaacagtgaa tcaactcaaa aataag 36

<210> 90
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 90
gaccccttatt tttgagttga ttcactgttt ccggaaca 38

<210> 91
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 91
ctagcgacga cgacgacaaa gaaactctgc ctccaaaata cctgcattac gatccggaaa 60
ctgggtcatca gctgctgtgt cataaatgtg ctccgggtac 100

<210> 92
<211> 92
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Part of oligonucleotide duplex used in vector formation.

<400> 92
ccggagcaca tttatcacac agcagctgat gaccagtttc cggatcgtaa tgcaggtatt 60
ttggaggcag agttttctttg tcgtcgtcgt cg 92

<210> 93
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 93
acaaacacaa tcgatttgat actaga 26

<210> 94

<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 94
tttgttttaa ctaattaaag gaggaataaa atatgagagg atcgcatcac 50

<210> 95
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 95
catcaccatc acgaaacctt cccgccgaaa tacctgcact acgacgaaga 50

<210> 96
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 96
aacctccac cagctgctgt gcgacaaatg cccgccgggt acccaaaca 49

<210> 97
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 97
tgtttggtta cccggcgggc atttgt 26

<210> 98

<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 98
cgcacagcag ctggtgggag gtttcttcgt cgtagtgcag gtatttcggc 50

<210> 99
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 99
gggaaggttt cgtgatggtg atggtgatgc catcctctca tattttatt 49

<210> 100
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Used to produce fusion protein with human OPG.

<400> 100
cctcctttta ttagttaaaa caaatctagt atcaaatacga ttgtgtttgt 50

<210> 101
<211> 59
<212> DNA
<213> Homo sapiens

<400> 101
acaaacacaa tcgatttgat actagatttg ttttaactaa ttaaaggagg aataaaatg 59

<210> 102
<211> 48
<212> DNA
<213> Homo sapiens

<400> 102

ctaattaaag gaggaataaa atgaaagaaa cttttcctcc aaaatatc 48

<210> 103
<211> 31
<212> DNA
<213> Homo sapiens

<400> 103
tgtttgggta cccggcggac atttatcaca c 31

<210> 104
<211> 59
<212> DNA
<213> Homo sapiens

<400> 104
acaaacacaa tcgatttgat actagatttg ttttaactaa ttaaaggagg aataaaatg 59

<210> 105
<211> 54
<212> DNA
<213> Homo sapiens

<400> 105
ctaattaaag gaggaataaa atgaaaaaaaa aagaaacttt tcctccaaaa tatc 54

<210> 106
<211> 31
<212> DNA
<213> Homo sapiens

<400> 106
tgtttgggta cccggcggac atttatcaca c 31

<210> 107
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for FchOPG fusion protein.

<400> 107
cagcccgggt aaaatggaaa cgtttcctcc aaaatatctt catt 44

<210> 108
<211> 44
<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for FchOPG fusion protein.

<400> 108

cgtttccatt ttacccgggc tgagcgagag gctcttctgc gtgt

44

<210> 109

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for FcmuOPG fusion protein.

<400> 109

cgctcagccc gggtaaaatg gaaacgttgc ctccaaaata cctgc

45

<210> 110

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for FcmuOPG fusion protein.

<400> 110

ccattttacc cgggctgagc gagaggctct tctgcgtgt

39

<210> 111

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for muOPG-Fc fusion protein.

<400> 111

gaaaataaga tgcttagctg cagctgaacc aaaatc

36

<210> 112

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for muOPG-Fc fusion protein.

<400> 112

cagctgcagc taagcagctt attttcacgg attg

34

<210> 113

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for huOPG-Fc fusion protein.

<400> 113

aaaaataagc tgcttagctg cagctgaacc aaaatc

36

<210> 114

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> PCR primer for huOPG-Fc fusion protein.

<400> 114

cagctgcagc taagcagctt atttttactg attgg

35

<210> 115

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> Linker with XbaI and KpnI sites inserted into human sequence.

<400> 115

ctagaaggag gaataacata tggaaacttt tgctccaaaa tatcttcatt atgatgaaga

60

aactagtcac cagctgctgt gtgataaatg tccgccgggt ac

102

<210> 116

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<211> 94
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Linker with XbaI and KpnI sites inserted into human sequence.

<400> 116
ccggcgggaca tttatcacac agcagctgat gactagtttc ttcatacataa tgaagatatt    60
ttggagcaaa agtttccata tgttattcct cctt                                     94

<210> 117
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Linker with XbaI and SpeI sites inserted into human sequence.

<400> 117
ctagaaggag gaataacata tggaaacttt tcctgctaaa tatcttcatt atgatgaaga    60
aa                                                                    62

<210> 118
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Linker with XbaI and SpeI sites inserted into human sequence.

<400> 118
ctagtttctt catcataatg aagatattta gcaggaaaag tttccatatg ttattcctcc    60
tt                                                                    62

<210> 119
<211> 51
<212> PRT
<213> Homo sapiens

<400> 119
Tyr His Tyr Tyr Asp Gln Asn Gly Arg Met Cys Glu Glu Cys His Met
1           5           10           15

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Cys Gln Pro Gly His Phe Leu Val Lys His Cys Lys Gln Pro Lys Arg
20 25 30

Asp Thr Val Cys His Lys Pro Cys Glu Pro Gly Val Thr Tyr Thr Asp
35 40 45

Asp Trp His
50

<210> 120

<211> 2432

<212> DNA

<213> Rattus rattus

<220>

<221> CDS

<222> (124)..(1326)

<400> 120

atcaaaggca gggcatactt cctgttgccc agaccttata taaaacgtca tgttcgcctg 60

ggcagcagag aagcacctag cactggccca gcggtcgccg cctgaggttt ccagaggacc 120

aca atg aac aag tgg ctg tgc tgt gca ctc ctg gtg ttc ttg gac atc 168
Met Asn Lys Trp Leu Cys Cys Ala Leu Leu Val Phe Leu Asp Ile
1 5 10 15

att gaa tgg aca acc cag gaa acc ttt cct cca aaa tac ttg cat tat 216
Ile Glu Trp Thr Thr Gln Glu Thr Phe Pro Pro Lys Tyr Leu His Tyr
20 25 30

gac cca gaa acc gga cgt cag ctc ttg tgt gac aaa tgt gct cct ggc 264
Asp Pro Glu Thr Gly Arg Gln Leu Leu Cys Asp Lys Cys Ala Pro Gly
35 40 45

acc tac cta aaa cag cac tgc aca gtc agg agg aag aca ctg tgt gtc 312
Thr Tyr Leu Lys Gln His Cys Thr Val Arg Arg Lys Thr Leu Cys Val
50 55 60

cct tgc cct gac tac tct tat aca gac agc tgg cac acg agt gat gaa 360
Pro Cys Pro Asp Tyr Ser Tyr Thr Asp Ser Trp His Thr Ser Asp Glu
65 70 75

tgc gtg tac tgc agc ccc gtg tgc aag gaa ctg cag acc gtg aaa cag 408
Cys Val Tyr Cys Ser Pro Val Cys Lys Glu Leu Gln Thr Val Lys Gln
80 85 90 95

gag tgc aac cgc acc cac aac cga gtg tgc gaa tgt gag gaa ggg cgc 456
Glu Cys Asn Arg Thr His Asn Arg Val Cys Glu Cys Glu Glu Gly Arg
100 105 110

tac ctg gag ctc gaa ttc tgc ttg aag cac cgg agc tgt ccc cca ggc 504
Tyr Leu Glu Leu Glu Phe Cys Leu Lys His Arg Ser Cys Pro Pro Gly
115 120 125

ttg ggt gtg ctg cag gct ggg acc cca gag cga aac acg gtt tgc aaa	552
Leu Gly Val Leu Gln Ala Gly Thr Pro Glu Arg Asn Thr Val Cys Lys	
130 135 140	
aga tgt ccg gat ggg ttc ttc tca ggt gag acg tca tcg aaa gca ccc	600
Arg Cys Pro Asp Gly Phe Phe Ser Gly Glu Thr Ser Ser Lys Ala Pro	
145 150 155	
tgt agg aaa cac acc aac tgc agc tca ctt ggc ctc ctg cta att cag	648
Cys Arg Lys His Thr Asn Cys Ser Ser Leu Gly Leu Leu Leu Ile Gln	
160 165 170 175	
aaa gga aat gca aca cat gac aat gta tgt tcc gga aac aga gaa gca	696
Lys Gly Asn Ala Thr His Asp Asn Val Cys Ser Gly Asn Arg Glu Ala	
180 185 190	
act caa aat tgt gaa ata gat gtc acc ctg tgc gaa gag gca ttc ttc	744
Thr Gln Asn Cys Glu Ile Asp Val Thr Leu Cys Glu Glu Ala Phe Phe	
195 200 205	
agg ttt gct gtg cct acc aag att ata ccg aat tgg ctg agt gtt ctg	792
Arg Phe Ala Val Pro Thr Lys Ile Ile Pro Asn Trp Leu Ser Val Leu	
210 215 220	
gtg gac agt ttg cct ggg acc aaa gtg aat gca gag agt gta gag agg	840
Val Asp Ser Leu Pro Gly Thr Lys Val Asn Ala Glu Ser Val Glu Arg	
225 230 235	
ata aaa cgg aga cac agc tcg caa gag caa act ttc cag cta ctt aag	888
Ile Lys Arg Arg His Ser Ser Gln Glu Gln Thr Phe Gln Leu Leu Lys	
240 245 250 255	
ctg tgg aag cat caa aac aga gac cag gaa atg gtg aag aag atc atc	936
Leu Trp Lys His Gln Asn Arg Asp Gln Glu Met Val Lys Lys Ile Ile	
260 265 270	
caa gac att gac ctc tgt gaa agc agt gtg caa cgg cat atc ggc cac	984
Gln Asp Ile Asp Leu Cys Glu Ser Ser Val Gln Arg His Ile Gly His	
275 280 285	
gcg aac ctc acc aca gag cag ctc cgc atc ttg atg gag agc ttg cct	1032
Ala Asn Leu Thr Thr Glu Gln Leu Arg Ile Leu Met Glu Ser Leu Pro	
290 295 300	
ggg aag aag atc agc cca gac gag att gag aga acg aga aag acc tgc	1080
Gly Lys Lys Ile Ser Pro Asp Glu Ile Glu Arg Thr Arg Lys Thr Cys	
305 310 315	
aaa ccc agc gag cag ctc ctg aag cta ctg agc ttg tgg agg atc aaa	1128
Lys Pro Ser Glu Gln Leu Leu Lys Leu Leu Ser Leu Trp Arg Ile Lys	
320 325 330 335	
aat gga gac caa gac acc ttg aag ggc ctg atg tac gca ctc aag cac	1176
Asn Gly Asp Gln Asp Thr Leu Lys Gly Leu Met Tyr Ala Leu Lys His	
340 345 350	

ttg aaa gca tac cac ttt ccc aaa acc gtc acc cac agt ctg agg aag	1224
Leu Lys Ala Tyr His Phe Pro Lys Thr Val Thr His Ser Leu Arg Lys	
355 360 365	
acc atc agg ttc ttg cac agc ttc acc atg tac cga ttg tat cag aaa	1272
Thr Ile Arg Phe Leu His Ser Phe Thr Met Tyr Arg Leu Tyr Gln Lys	
370 375 380	
ctc ttt cta gaa atg ata ggg aat cag gtt caa tca gtg aag ata agc	1320
Leu Phe Leu Glu Met Ile Gly Asn Gln Val Gln Ser Val Lys Ile Ser	
385 390 395	
tgc tta tagttaggaa tggctactgg gctgtttctt caggatgggc caacactgat	1376
Cys Leu	
400	
ggagcagatg gctgcttctc cggctcttga aatggcagtt gattcctttc tcatcagttg	1436
gtgggaatga agatcctcca gcccaacaca cacactgggg agtctgagtc aggagagtga	1496
ggcaggctat ttgataattg tgcaaagctg ccagggtgtac acctagaaag tcaagcaccc	1556
tgagaaagag gatattttta taacctcaaa cataggccct ttcttctctc tccttatgga	1616
tgagtactca gaaggcttct actatcttct gtgtcatccc tagatgaagg cctcttttat	1676
ttattttttt attctttttt tcggagctgg ggaccgaacc cagggccttg cgcttgcgag	1736
gcaagtgtc taccactgag ctaaactctc aaccctgaa ggctctttc tttctgcctc	1796
tgatagtcta tgacattctt ttttctacaa ttcgtatcag gtgcacgagc cttatcccat	1856
ttgtaggttt ctaggcaagt tgaccgtag ctatttttcc ctctgaagat ttgattcgag	1916
ttgcagactt ggctagacaa gcaggggtag gttatggtag tttatttaac agactgccac	1976
caggagtcca gtgtttcttg ttctctgtga gttgtacctt agctgactcc aagtacattt	2036
agtatgaaaa ataatacaaca aattttattc cttctatcaa cattggctag ctttgtttca	2096
gggcactaaa agaaactact atatggagaa agaattgata ttgcccccaa cgttcaacaa	2156
cccaatagtt tatccagctg tcatgcctgg ttcagtgctt actgactatg cgccctctta	2216
ttactgcatg cagtaattca actggaaata gtaataataa taatagaaat aaaatctaga	2276
ctccattgga tctctctgaa tatgggaata tctaacttaa gaagctttga gatttcagtt	2336
gtgttaaagg cttttattaa aaagctgatg ctcttctgta aaagttacta atatatctgt	2396
aagactatta cagtattgct atttatatcc atccag	2432

<210> 121
 <211> 401
 <212> PRT

<213> Rattus rattus

<400> 121

Met Asn Lys Trp Leu Cys Cys Ala Leu Leu Val Phe Leu Asp Ile Ile
1 5 10 15

Glu Trp Thr Thr Gln Glu Thr Phe Pro Pro Lys Tyr Leu His Tyr Asp
20 25 30

Pro Glu Thr Gly Arg Gln Leu Leu Cys Asp Lys Cys Ala Pro Gly Thr
35 40 45

Tyr Leu Lys Gln His Cys Thr Val Arg Arg Lys Thr Leu Cys Val Pro
50 55 60

Cys Pro Asp Tyr Ser Tyr Thr Asp Ser Trp His Thr Ser Asp Glu Cys
65 70 75 80

Val Tyr Cys Ser Pro Val Cys Lys Glu Leu Gln Thr Val Lys Gln Glu
85 90 95

Cys Asn Arg Thr His Asn Arg Val Cys Glu Cys Glu Glu Gly Arg Tyr
100 105 110

Leu Glu Leu Glu Phe Cys Leu Lys His Arg Ser Cys Pro Pro Gly Leu
115 120 125

Gly Val Leu Gln Ala Gly Thr Pro Glu Arg Asn Thr Val Cys Lys Arg
130 135 140

Cys Pro Asp Gly Phe Phe Ser Gly Glu Thr Ser Ser Lys Ala Pro Cys
145 150 155 160

Arg Lys His Thr Asn Cys Ser Ser Leu Gly Leu Leu Leu Ile Gln Lys
165 170 175

Gly Asn Ala Thr His Asp Asn Val Cys Ser Gly Asn Arg Glu Ala Thr
180 185 190

Gln Asn Cys Glu Ile Asp Val Thr Leu Cys Glu Glu Ala Phe Phe Arg
195 200 205

Phe Ala Val Pro Thr Lys Ile Ile Pro Asn Trp Leu Ser Val Leu Val
210 215 220

Asp Ser Leu Pro Gly Thr Lys Val Asn Ala Glu Ser Val Glu Arg Ile
225 230 235 240

Lys Arg Arg His Ser Ser Gln Glu Gln Thr Phe Gln Leu Leu Lys Leu
245 250 255

Trp Lys His Gln Asn Arg Asp Gln Glu Met Val Lys Lys Ile Ile Gln
260 265 270

Asp Ile Asp Leu Cys Glu Ser Ser Val Gln Arg His Ile Gly His Ala
275 280 285

Asn Leu Thr Thr Glu Gln Leu Arg Ile Leu Met Glu Ser Leu Pro Gly
290 295 300

Lys Lys Ile Ser Pro Asp Glu Ile Glu Arg Thr Arg Lys Thr Cys Lys
305 310 315 320

Pro Ser Glu Gln Leu Leu Lys Leu Leu Ser Leu Trp Arg Ile Lys Asn
325 330 335

Gly Asp Gln Asp Thr Leu Lys Gly Leu Met Tyr Ala Leu Lys His Leu
340 345 350

Lys Ala Tyr His Phe Pro Lys Thr Val Thr His Ser Leu Arg Lys Thr
355 360 365

Ile Arg Phe Leu His Ser Phe Thr Met Tyr Arg Leu Tyr Gln Lys Leu
370 375 380

Phe Leu Glu Met Ile Gly Asn Gln Val Gln Ser Val Lys Ile Ser Cys
385 390 395 400

Leu

<210> 122
<211> 1325
<212> DNA
<213> Mus musculus

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<220>
<221> CDS
<222> (91)..(1293)
<220>
<221> misc_feature
<222> ()..()
<223> At position 11, R is a purine.

<400> 122
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gctgcctcct gaggtttccc gaggaccaca atg aac aag tgg ctg tgc tgc gca      114
                               Met Asn Lys Trp Leu Cys Cys Ala
                               1                               5

ctc ctg gtg ctc ctg gac atc att gaa tgg aca acc cag gaa acc ctt      162
Leu Leu Val Leu Leu Asp Ile Ile Glu Trp Thr Thr Gln Glu Thr Leu
   10                               15                               20

ctt cca aag tac ttg cat tat gac cca gaa act ggt cat cag ctc ctg      210
Leu Pro Lys Tyr Leu His Tyr Asp Pro Glu Thr Gly His Gln Leu Leu
   25                               30                               35                               40

tgt gac aaa tgt gct cct ggc acc tac cta aaa cag cac tgc aca gtg      258
Cys Asp Lys Cys Ala Pro Gly Thr Tyr Leu Lys Gln His Cys Thr Val
                               45                               50                               55

agg agg aag aca ttg tgt gtc cct tgc cct gac cac tct tat acg gac      306
Arg Arg Lys Thr Leu Cys Val Pro Cys Pro Asp His Ser Tyr Thr Asp
                               60                               65                               70

agc tgg cac acc agt gat gag tgt gtg tat tgc agc cca gtg tgc aag      354
Ser Trp His Thr Ser Asp Glu Cys Val Tyr Cys Ser Pro Val Cys Lys
   75                               80                               85

gaa ctg cag tcc gtg aag cag gag tgc aac cgc acc cac aac cga gtg      402
Glu Leu Gln Ser Val Lys Gln Glu Cys Asn Arg Thr His Asn Arg Val
   90                               95                               100

tgt gag tgt gag gaa ggg cgt tac ctg gag atc gaa ttc tgc ttg aag      450
Cys Glu Cys Glu Glu Gly Arg Tyr Leu Glu Ile Glu Phe Cys Leu Lys
  105                               110                               115                               120

cac cgg agc tgt ccc ccg ggc tcc ggc gtg gtg caa gct gga acc cca      498
His Arg Ser Cys Pro Pro Gly Ser Gly Val Val Gln Ala Gly Thr Pro
                               125                               130                               135

gag cga aac aca gtt tgc aaa aaa tgt cca gat ggg ttc ttc tca ggt      546
Glu Arg Asn Thr Val Cys Lys Lys Cys Pro Asp Gly Phe Phe Ser Gly
                               140                               145                               150

gag act tca tcg aaa gca ccc tgt ata aaa cac acg aac tgc agc aca      594
Glu Thr Ser Ser Lys Ala Pro Cys Ile Lys His Thr Asn Cys Ser Thr
                               155                               160                               165

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ttt ggc ctc ctg cta att cag aaa gga aat gca aca cat gac aac tgt	642
Phe Gly Leu Leu Leu Ile Gln Lys Gly Asn Ala Thr His Asp Asn Cys	
170 175 180	
tgt tcc gga aac aga gaa gcc acg caa aag tgt gga ata gat gtc acc	690
Cys Ser Gly Asn Arg Glu Ala Thr Gln Lys Cys Gly Ile Asp Val Thr	
185 190 195 200	
ctg tgt gaa gag gcc ttc ttc agg ttt gct gtt cct acc aag att ata	738
Leu Cys Glu Glu Ala Phe Phe Arg Phe Ala Val Pro Thr Lys Ile Ile	
205 210 215	
cca aat tgg ctg agt gtt ttg gtg gac agt ttg cct ggg acc aaa gtg	786
Pro Asn Trp Leu Ser Val Leu Val Asp Ser Leu Pro Gly Thr Lys Val	
220 225 230	
aat gcc gag agt gta gag agg ata aaa cgg aga cac agc tca caa gag	834
Asn Ala Glu Ser Val Glu Arg Ile Lys Arg Arg His Ser Ser Gln Glu	
235 240 245	
caa acc ttc cag ctg ctg aag ctg tgg aaa cat caa aac aga gac cag	882
Gln Thr Phe Gln Leu Leu Lys Leu Trp Lys His Gln Asn Arg Asp Gln	
250 255 260	
gaa atg gtg aag aag atc atc caa gac att gac ctc tgt gaa agc agc	930
Glu Met Val Lys Lys Ile Ile Gln Asp Ile Asp Leu Cys Glu Ser Ser	
265 270 275 280	
gtg cag cgg cat ctc ggc cac tcg aac ctc acc aca gag cag ctt ctt	978
Val Gln Arg His Leu Gly His Ser Asn Leu Thr Thr Glu Gln Leu Leu	
285 290 295	
gcc ttg atg gag agc ctg cct ggg aag aag atc agc cca gaa gag att	1026
Ala Leu Met Glu Ser Leu Pro Gly Lys Lys Ile Ser Pro Glu Glu Ile	
300 305 310	
gag aga acg aga aag acc tgc aaa tcg agc gag cag ctc ctg aag cta	1074
Glu Arg Thr Arg Lys Thr Cys Lys Ser Ser Glu Gln Leu Leu Lys Leu	
315 320 325	
ctc agt tta tgg agg atc aaa aat ggt gac caa gac acc ttg aag ggc	1122
Leu Ser Leu Trp Arg Ile Lys Asn Gly Asp Gln Asp Thr Leu Lys Gly	
330 335 340	
ctg atg tat gcc ctc aag cac ttg aaa aca tcc cac ttt ccc aaa act	1170
Leu Met Tyr Ala Leu Lys His Leu Lys Thr Ser His Phe Pro Lys Thr	
345 350 355 360	
gtc acc cac agt ctg agg aag acc atg agg ttc ctg cac agc ttc aca	1218
Val Thr His Ser Leu Arg Lys Thr Met Arg Phe Leu His Ser Phe Thr	
365 370 375	
atg tac aga ctg tat cag aag ctc ttt tta gaa atg ata ggg aat cag	1266
Met Tyr Arg Leu Tyr Gln Lys Leu Phe Leu Glu Met Ile Gly Asn Gln	
380 385 390	

gtt caa tcc gtg aaa ata agc tgc tta taactaggaa tggtcactgg 1313
Val Gln Ser Val Lys Ile Ser Cys Leu
395 400

gctgtttctt ca 1325

<210> 123
<211> 401
<212> PRT
<213> Mus musculus

<220>
<221> misc_feature
<222> ()..()
<223> At position 11, R is a purine.

<400> 123

Met Asn Lys Trp Leu Cys Cys Ala Leu Leu Val Leu Leu Asp Ile Ile
1 5 10 15

Glu Trp Thr Thr Gln Glu Thr Leu Leu Pro Lys Tyr Leu His Tyr Asp
20 25 30

Pro Glu Thr Gly His Gln Leu Leu Cys Asp Lys Cys Ala Pro Gly Thr
35 40 45

Tyr Leu Lys Gln His Cys Thr Val Arg Arg Lys Thr Leu Cys Val Pro
50 55 60

Cys Pro Asp His Ser Tyr Thr Asp Ser Trp His Thr Ser Asp Glu Cys
65 70 75 80

Val Tyr Cys Ser Pro Val Cys Lys Glu Leu Gln Ser Val Lys Gln Glu
85 90 95

Cys Asn Arg Thr His Asn Arg Val Cys Glu Cys Glu Glu Gly Arg Tyr
100 105 110

Leu Glu Ile Glu Phe Cys Leu Lys His Arg Ser Cys Pro Pro Gly Ser
115 120 125

Gly Val Val Gln Ala Gly Thr Pro Glu Arg Asn Thr Val Cys Lys Lys
130 135 140

Cys Pro Asp Gly Phe Phe Ser Gly Glu Thr Ser Ser Lys Ala Pro Cys

145		150		155		160
Ile Lys His Thr	Asn Cys Ser Thr	Phe Gly Leu Leu Leu	Ile Gln Lys			
	165	170	175			
Gly Asn Ala Thr	His Asp Asn Cys	Cys Ser Gly Asn Arg	Glu Ala Thr			
	180	185	190			
Gln Lys Cys Gly	Ile Asp Val Thr	Leu Cys Glu Glu	Ala Phe Phe Arg			
	195	200	205			
Phe Ala Val Pro	Thr Lys Ile Ile	Pro Asn Trp Leu	Ser Val Leu Val			
	210	215	220			
Asp Ser Leu Pro	Gly Thr Lys Val	Asn Ala Glu Ser	Val Glu Arg Ile			
	225	230	235			240
Lys Arg Arg His	Ser Ser Gln Glu	Gln Thr Phe Gln	Leu Leu Lys Leu			
	245	250	255			
Trp Lys His Gln	Asn Arg Asp Gln	Glu Met Val Lys	Lys Ile Ile Gln			
	260	265	270			
Asp Ile Asp Leu	Cys Glu Ser Ser	Val Gln Arg His	Leu Gly His Ser			
	275	280	285			
Asn Leu Thr Thr	Glu Gln Leu Leu	Ala Leu Met Glu	Ser Leu Pro Gly			
	290	295	300			
Lys Lys Ile Ser	Pro Glu Glu Ile	Glu Arg Thr Arg	Lys Thr Cys Lys			
	305	310	315			320
Ser Ser Glu Gln	Leu Leu Lys Leu	Leu Ser Leu Trp	Arg Ile Lys Asn			
	325	330	335			
Gly Asp Gln Asp	Thr Leu Lys Gly	Leu Met Tyr Ala	Leu Lys His Leu			
	340	345	350			
Lys Thr Ser His	Phe Pro Lys Thr	Val Thr His Ser	Leu Arg Lys Thr			
	355	360	365			
Met Arg Phe Leu	His Ser Phe Thr	Met Tyr Arg Leu	Tyr Gln Lys Leu			

370		375		380											
Phe	Leu	Glu	Met	Ile	Gly	Asn	Gln	Val	Gln	Ser	Val	Lys	Ile	Ser	Cys
385					390					395					400

Leu

<210> 124
 <211> 1356
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (95)..(1297)

<220>
 <221> misc_feature
 <222> ()..()
 <223> At position 63, Y is a pyrimidine.

<400> 124
 gtatatataa cgtgatgagc gtacgggtgc ggagacgcac cggcgcgctc gcccagccgc 60
 cgycaccaag cccctgaggt ttccggggac caca atg aac aag ttg ctg tgc tgc 115
 Met Asn Lys Leu Leu Cys Cys
 1 5

gcg ctc gtg ttt ctg gac atc tcc att aag tgg acc acc cag gaa acg 163
 Ala Leu Val Phe Leu Asp Ile Ser Ile Lys Trp Thr Thr Gln Glu Thr
 10 15 20

ttt cct cca aag tac ctt cat tat gac gaa gaa acc tct cat cag ctg 211
 Phe Pro Pro Lys Tyr Leu His Tyr Asp Glu Glu Thr Ser His Gln Leu
 25 30 35

ttg tgt gac aaa tgt cct cct ggt acc tac cta aaa caa cac tgt aca 259
 Leu Cys Asp Lys Cys Pro Pro Gly Thr Tyr Leu Lys Gln His Cys Thr
 40 45 50 55

gca aag tgg aag tcc gtg tgc gcc cct tgc cct gac cac tac tac aca 307
 Ala Lys Trp Lys Ser Val Cys Ala Pro Cys Pro Asp His Tyr Tyr Thr
 60 65 70

gac agc tgg cac acc agt gac gag tgt cta tac tgc agc ccc gtg tgc 355
 Asp Ser Trp His Thr Ser Asp Glu Cys Leu Tyr Cys Ser Pro Val Cys
 75 80 85

aag gag ctg cag tac gtc aag cag gag tgc aat cgc acc cac aac cgc 403
 Lys Glu Leu Gln Tyr Val Lys Gln Glu Cys Asn Arg Thr His Asn Arg
 90 95 100

gtg tgc gaa tgc aag gaa ggg cgc tac ctt gag ata gag ttc tgc ttg	451
Val Cys Glu Cys Lys Glu Gly Arg Tyr Leu Glu Ile Glu Phe Cys Leu	
105 110 115	
aaa cat agg agc tgc cct cct gga ttt gga gtg gtg caa gct gga acc	499
Lys His Arg Ser Cys Pro Pro Gly Phe Gly Val Val Gln Ala Gly Thr	
120 125 130 135	
cca gag cga aat aca gtt tgc aaa aga tgt cca gat ggg ttc ttc tca	547
Pro Glu Arg Asn Thr Val Cys Lys Arg Cys Pro Asp Gly Phe Phe Ser	
140 145 150	
aat gag acg tca tct aaa gca ccc tgt aga aaa cac aca aat tgc agt	595
Asn Glu Thr Ser Ser Lys Ala Pro Cys Arg Lys His Thr Asn Cys Ser	
155 160 165	
gtc ttt ggt ctc ctg cta act cag aaa gga aat gca aca cac gac aac	643
Val Phe Gly Leu Leu Leu Thr Gln Lys Gly Asn Ala Thr His Asp Asn	
170 175 180	
ata tgt tcc gga aac agt gaa tca act caa aaa tgt gga ata gat gtt	691
Ile Cys Ser Gly Asn Ser Glu Ser Thr Gln Lys Cys Gly Ile Asp Val	
185 190 195	
acc ctg tgt gag gag gca ttc ttc agg ttt gct gtt cct aca aag ttt	739
Thr Leu Cys Glu Glu Ala Phe Phe Arg Phe Ala Val Pro Thr Lys Phe	
200 205 210 215	
acg cct aac tgg ctt agt gtc ttg gta gac aat ttg cct ggc acc aaa	787
Thr Pro Asn Trp Leu Ser Val Leu Val Asp Asn Leu Pro Gly Thr Lys	
220 225 230	
gta aac gca gag agt gta gag agg ata aaa cgg caa cac agc tca caa	835
Val Asn Ala Glu Ser Val Glu Arg Ile Lys Arg Gln His Ser Ser Gln	
235 240 245	
gaa cag act ttc cag ctg ctg aag tta tgg aaa cat caa aac aaa gcc	883
Glu Gln Thr Phe Gln Leu Leu Lys Leu Trp Lys His Gln Asn Lys Ala	
250 255 260	
caa gat ata gtc aag aag atc atc caa gat att gac ctc tgt gaa aac	931
Gln Asp Ile Val Lys Lys Ile Ile Gln Asp Ile Asp Leu Cys Glu Asn	
265 270 275	
agc gtg cag cgg cac att gga cat gct aac ctc acc ttc gag cag ctt	979
Ser Val Gln Arg His Ile Gly His Ala Asn Leu Thr Phe Glu Gln Leu	
280 285 290 295	
cgt agc ttg atg gaa agc tta ccg gga aag aaa gtg gga gca gaa gac	1027
Arg Ser Leu Met Glu Ser Leu Pro Gly Lys Lys Val Gly Ala Glu Asp	
300 305 310	
att gaa aaa aca ata aag gca tgc aaa ccc agt gac cag atc ctg aag	1075
Ile Glu Lys Thr Ile Lys Ala Cys Lys Pro Ser Asp Gln Ile Leu Lys	
315 320 325	

ctg ctc agt ttg tgg cga ata aaa aat ggc gac caa gac acc ttg aag 1123
Leu Leu Ser Leu Trp Arg Ile Lys Asn Gly Asp Gln Asp Thr Leu Lys
330 335 340

ggc cta atg cac gca cta aag cac tca aag acg tac cac ttt ccc aaa 1171
Gly Leu Met His Ala Leu Lys His Ser Lys Thr Tyr His Phe Pro Lys
345 350 355

act gtc act cag agt cta aag aag acc atc agg ttc ctt cac agc ttc 1219
Thr Val Thr Gln Ser Leu Lys Lys Thr Ile Arg Phe Leu His Ser Phe
360 365 370 375

aca atg tac aaa ttg tat cag aag tta ttt tta gaa atg ata ggt aac 1267
Thr Met Tyr Lys Leu Tyr Gln Lys Leu Phe Leu Glu Met Ile Gly Asn
380 385 390

cag gtc caa tca gta aaa ata agc tgc tta taactggaaa tggccattga 1317
Gln Val Gln Ser Val Lys Ile Ser Cys Leu
395 400

gctgtttcct cacaattggc gagatcccat ggatgataa 1356

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<210> 125
<211> 401
<212> PRT
<213> Homo sapiens
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```
<220>
<221> misc_feature
<222> ()..()
<223> At position 63, Y is a pyrimidine.
```

<400> 125

Met Asn Lys Leu Leu Cys Cys Ala Leu Val Phe Leu Asp Ile Ser Ile
1 5 10 15

Lys Trp Thr Thr Gln Glu Thr Phe Pro Pro Lys Tyr Leu His Tyr Asp
20 25 30

Glu Glu Thr Ser His Gln Leu Leu Cys Asp Lys Cys Pro Pro Gly Thr
35 40 45

Tyr Leu Lys Gln His Cys Thr Ala Lys Trp Lys Ser Val Cys Ala Pro
50 55 60

Cys Pro Asp His Tyr Tyr Thr Asp Ser Trp His Thr Ser Asp Glu Cys
65 70 75 80

Leu Tyr Cys Ser Pro Val Cys Lys Glu Leu Gln Tyr Val Lys Gln Glu
85 90 95

Cys Asn Arg Thr His Asn Arg Val Cys Glu Cys Lys Glu Gly Arg Tyr
100 105 110

Leu Glu Ile Glu Phe Cys Leu Lys His Arg Ser Cys Pro Pro Gly Phe
115 120 125

Gly Val Val Gln Ala Gly Thr Pro Glu Arg Asn Thr Val Cys Lys Arg
130 135 140

Cys Pro Asp Gly Phe Phe Ser Asn Glu Thr Ser Ser Lys Ala Pro Cys
145 150 155 160

Arg Lys His Thr Asn Cys Ser Val Phe Gly Leu Leu Leu Thr Gln Lys
165 170 175

Gly Asn Ala Thr His Asp Asn Ile Cys Ser Gly Asn Ser Glu Ser Thr
180 185 190

Gln Lys Cys Gly Ile Asp Val Thr Leu Cys Glu Glu Ala Phe Phe Arg
195 200 205

Phe Ala Val Pro Thr Lys Phe Thr Pro Asn Trp Leu Ser Val Leu Val
210 215 220

Asp Asn Leu Pro Gly Thr Lys Val Asn Ala Glu Ser Val Glu Arg Ile
225 230 235 240

Lys Arg Gln His Ser Ser Gln Glu Gln Thr Phe Gln Leu Leu Lys Leu
245 250 255

Trp Lys His Gln Asn Lys Ala Gln Asp Ile Val Lys Lys Ile Ile Gln
260 265 270

Asp Ile Asp Leu Cys Glu Asn Ser Val Gln Arg His Ile Gly His Ala
275 280 285

Asn Leu Thr Phe Glu Gln Leu Arg Ser Leu Met Glu Ser Leu Pro Gly
290 295 300

Lys Lys Val Gly Ala Glu Asp Ile Glu Lys Thr Ile Lys Ala Cys Lys
305 310 315 320

Pro Ser Asp Gln Ile Leu Lys Leu Leu Ser Leu Trp Arg Ile Lys Asn
325 330 335

Gly Asp Gln Asp Thr Leu Lys Gly Leu Met His Ala Leu Lys His Ser
340 345 350

Lys Thr Tyr His Phe Pro Lys Thr Val Thr Gln Ser Leu Lys Lys Thr
355 360 365

Ile Arg Phe Leu His Ser Phe Thr Met Tyr Lys Leu Tyr Gln Lys Leu
370 375 380

Phe Leu Glu Met Ile Gly Asn Gln Val Gln Ser Val Lys Ile Ser Cys
385 390 395 400

Leu

<210> 126
<211> 139
<212> PRT
<213> Homo sapiens

<400> 126

Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn Asn Ser Ile Cys Cys
1 5 10 15

Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys Pro Gly Pro
20 25 30

Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser Phe Thr Ala
35 40 45

Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser Lys Cys Arg Lys
50 55 60

Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val Asp Arg Asp Thr
65 70 75 80

Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp Ser Glu Asn
85 90 95

Leu Phe Gln Cys Phe Asn Cys Ser Leu Cys Leu Asn Gly Thr Val His
100 105 110

Leu Ser Cys Gln Glu Lys Gln Asn Thr Val Cys Thr Cys His Ala Gly
115 120 125

Phe Phe Leu Arg Glu Asn Glu Cys Val Ser Cys
130 135

<210> 127

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> Oligonucleotide capable of hybridizing to human sequence.

<400> 127

acctacttct ttgaagagta gtcgacgaca cactatttac aggcggcc

48

<210> 128

<211> 219

<212> PRT

<213> Rattus rattus

<400> 128

Met Leu Gly Ile Trp Thr Leu Leu Pro Leu Val Leu Thr Ser Val Ala
1 5 10 15

Arg Leu Ser Ser Lys Ser Val Asn Ala Gln Val Thr Asp Ile Asn Ser
20 25 30

Lys Gly Leu Glu Leu Arg Lys Thr Val Thr Thr Val Glu Thr Gln Asn
35 40 45

Leu Glu Gly Leu His His Asp Gly Gln Phe Cys His Lys Pro Cys Pro
50 55 60

Pro Gly Glu Arg Lys Ala Arg Asp Cys Thr Val Asn Gly Asp Glu Pro
65 70 75 80

Asp Cys Val Pro Cys Gln Glu Gly Lys Glu Tyr Thr Asp Lys Ala His
85 90 95

Phe Ser Ser Lys Cys Arg Arg Cys Arg Leu Cys Asp Glu Gly His Gly
100 105 110

Leu Glu Val Glu Ile Asn Cys Thr Arg Thr Gln Asn Thr Lys Cys Arg
115 120 125

Cys Lys Pro Asn Phe Phe Cys Asn Ser Thr Val Cys Glu His Cys Asp
130 135 140

Pro Cys Thr Lys Cys Glu His Gly Ile Ile Lys Glu Cys Thr Leu Thr
145 150 155 160

Ser Asn Thr Lys Cys Lys Glu Glu Gly Ser Arg Ser Asn Leu Gly Trp
165 170 175
Leu Cys Leu Leu Leu Leu Pro Ile Pro Leu Ile Val Trp Val Lys Arg
180 185 190
Lys Glu Val Gln Lys Thr Cys Arg Lys His Arg Lys Glu Asn Gln Gly
195 200 205
Ser His Glu Ser Pro Thr Leu Asn Pro Glu Thr
210 215

<210> 129
<211> 281
<212> PRT
<213> Rattus rattus

<400> 129

Met Gly Leu Ser Thr Val Pro Asp Leu Leu Leu Pro Leu Val Leu Leu
1 5 10 15
Glu Leu Leu Val Gly Ile Tyr Pro Ser Gly Val Ile Gly Leu Val Pro
20 25 30
His Leu Gly Asp Arg Glu Lys Arg Asp Ser Val Cys Pro Gln Gly Lys
35 40 45
Tyr Ile His Pro Gln Asn Asn Ser Ile Cys Cys Thr Lys Cys His Lys
50 55 60
Gly Thr Tyr Leu Thr Tyr Asn Asp Cys Pro Gly Pro Gly Gln Asp Thr
65 70 75 80
Asp Cys Arg Glu Cys Glu Ser Gly Ser Phe Thr Ala Ser Glu Asn His
85 90 95
Leu Arg His Cys Leu Ser Cys Ser Lys Cys Arg Lys Glu Met Gly Gln
100 105 110
Val Glu Ile Ser Ser Cys Thr Val Asp Arg Asp Thr Val Cys Gly Cys
115 120 125
Arg Lys Asn Gln Tyr Arg His Tyr Trp Ser Glu Asn Leu Phe Gln Cys
130 135 140
Phe Asn Cys Ser Leu Cys Leu Asn Gly Thr Val His Leu Ser Cys Gln
145 150 155 160
Glu Lys Gln Asn Thr Val Cys Thr Cys His Ala Gly Phe Phe Leu Arg
165 170 175
Glu Asn Glu Cys Val Ser Cys Ser Asn Cys Lys Lys Ser Leu Glu Cys
180 185 190

Thr Lys Leu Cys Leu Pro Gln Ile Glu Asn Val Lys Gly Thr Glu Asp
 195 200 205

Ser Gly Thr Thr Val Leu Leu Pro Leu Val Ile Phe Phe Gly Leu Cys
 210 215 220

Leu Leu Ser Leu Leu Phe Ile Gly Leu Met Thr Arg Thr Gln Arg Trp
 225 230 235 240

Lys Ser Lys Leu Tyr Ser Ile Val Cys Gly Lys Ser Thr Pro Glu Lys
 245 250 255

Glu Gly Glu Leu Glu Gly Thr Thr Thr Lys Pro Leu Ala Pro Asn Pro
 260 265 270

Ser Phe Ser Pro Thr Pro Gly Phe Thr
 275 280

<210> 130
 <211> 207
 <212> PRT
 <213> Rattus rattus

<400> 130

Met Leu Arg Leu Ile Ala Leu Leu Val Cys Val Val Tyr Val Tyr Gly
 1 5 10 15

Asp Asp Val Pro Tyr Ser Ser Asn Gln Gly Lys Cys Gly Gly His Asp
 20 25 30

Tyr Glu Lys Asp Gly Leu Cys Cys Ala Ser Cys His Pro Gly Phe Tyr
 35 40 45

Ala Ser Arg Leu Cys Gly Pro Gly Ser Asn Thr Val Cys Ser Pro Cys
 50 55 60

Glu Asp Gly Thr Phe Thr Ala Ser Thr Asn His Ala Pro Ala Cys Val
 65 70 75 80

Ser Cys Arg Gly Pro Cys Thr Gly His Leu Ser Glu Ser Gln Pro Cys
 85 90 95

Asp Arg Thr His Asp Arg Val Cys Asn Cys Ser Thr Gly Asn Tyr Cys
 100 105 110

Leu Leu Lys Gly Gln Asn Gly Cys Arg Ile Cys Ala Pro Gln Thr Lys
 115 120 125

Cys Pro Ala Gly Tyr Gly Val Ser Gly His Thr Arg Ala Gly Asp Thr
 130 135 140

Leu Cys Glu Lys Cys Pro Pro His Thr Tyr Ser Asp Ser Leu Ser Pro
 145 150 155 160

Thr Glu Arg Cys Gly Thr Ser Phe Asn Tyr Ile Ser Val Gly Phe Asn
165 170 175

Leu Tyr Pro Val Asn Glu Thr Ser Cys Thr Thr Thr Ala Gly His Asn
180 185 190

Glu Val Ile Lys Thr Lys Glu Phe Thr Val Thr Leu Asn Tyr Thr
195 200 205

<210> 131

<211> 227

<212> PRT

<213> Rattus rattus

<400> 131

Met Ala Pro Val Ala Val Trp Ala Ala Leu Ala Val Gly Leu Glu Leu
1 5 10 15

Trp Ala Ala Ala His Ala Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr
20 25 30

Ala Pro Glu Pro Gly Ser Thr Cys Arg Leu Arg Glu Thr Thr Asp Gln
35 40 45

Thr Ala Gln Met Cys Cys Ser Lys Cys Ser Pro Gly Gln His Ala Lys
50 55 60

Val Phe Cys Thr Lys Thr Ser Asp Thr Val Cys Asp Ser Cys Glu Asp
65 70 75 80

Ser Thr Tyr Thr Gln Leu Trp Asn Trp Val Pro Glu Cys Leu Ser Cys
85 90 95

Gly Ser Arg Cys Ser Ser Asp Gln Val Glu Thr Gln Ala Cys Thr Arg
100 105 110

Glu Gln Asn Arg Ile Cys Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu
115 120 125

Ser Lys Gln Glu Gly Cys Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg
130 135 140

Pro Gly Phe Gly Val Ala Arg Pro Gly Thr Glu Thr Ser Asp Val Val
145 150 155 160

Cys Lys Pro Cys Ala Pro Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr
165 170 175

Asp Ile Cys Arg Pro His Gln Ile Cys Asn Val Val Ala Ile Pro Gly
180 185 190

Asn Ala Ser Arg Asp Ala Val Cys Thr Ser Thr Ser Pro Thr Arg Ser
195 200 205

Met Ala Pro Gly Ala Val His Leu Pro Gln Pro Val Ser Thr Arg Ser
210 215 220

Gln His Thr
225

<210> 132
<211> 197
<212> PRT
<213> Rattus rattus

<400> 132

Met Val Ser Leu Pro Arg Leu Cys Ala Leu Trp Gly Cys Leu Leu Thr
1 5 10 15

Ala Val His Leu Gly Gln Cys Val Thr Cys Ser Asp Lys Gln Tyr Leu
20 25 30

His Asp Gly Gln Cys Cys Asp Leu Cys Gln Pro Gly Ser Arg Leu Thr
35 40 45

Ser His Cys Thr Ala Leu Glu Lys Thr Gln Cys His Pro Cys Asp Ser
50 55 60

Gly Glu Phe Ser Ala Gln Trp Asn Arg Glu Ile Arg Cys His Gln His
65 70 75 80

Arg His Cys Glu Pro Asn Gln Gly Leu Arg Val Lys Lys Glu Gly Thr
85 90 95

Ala Glu Ser Asp Thr Val Cys Thr Cys Lys Glu Gly Gln His Cys Thr
100 105 110

Ser Lys Asp Cys Glu Ala Cys Ala Gln His Thr Pro Cys Ile Pro Gly
115 120 125

Phe Gly Val Met Glu Met Ala Thr Glu Thr Thr Asp Thr Val Cys His
130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Gln Ser Ser Leu Phe Glu Lys
145 150 155 160

Cys Tyr Pro Trp Thr Ser Cys Glu Asp Lys Asn Leu Glu Val Leu Gln
165 170 175

Lys Gly Thr Ser Gln Thr Asn Val Ile Cys Gly Leu Lys Ser Arg Met
180 185 190

Arg Ala Leu Leu Val
195

<210> 133

<211> 208
<212> PRT
<213> Rattus rattus

<400> 133

Met	Asn	Lys	Trp	Leu	Cys	Cys	Ala	Leu	Leu	Val	Phe	Leu	Asp	Ile	Ile	
1				5					10					15		
Glu	Trp	Thr	Thr	Gln	Glu	Thr	Phe	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	
			20					25					30			
Pro	Glu	Thr	Gly	Arg	Gln	Leu	Leu	Cys	Asp	Lys	Cys	Ala	Pro	Gly	Thr	
			35				40					45				
Tyr	Leu	Lys	Gln	His	Cys	Thr	Val	Arg	Arg	Lys	Thr	Leu	Cys	Val	Pro	
	50					55					60					
Cys	Pro	Asp	Tyr	Ser	Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	
65					70					75					80	
Val	Tyr	Cys	Ser	Pro	Val	Cys	Lys	Glu	Leu	Gln	Thr	Val	Lys	Gln	Glu	
				85					90					95		
Cys	Asn	Arg	Thr	His	Asn	Arg	Val	Cys	Glu	Cys	Glu	Glu	Gly	Arg	Tyr	
			100					105					110			
Leu	Glu	Leu	Glu	Phe	Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Leu	
			115				120					125				
Gly	Val	Leu	Gln	Ala	Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Arg	
	130					135						140				
Cys	Pro	Asp	Gly	Phe	Phe	Ser	Gly	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	
145					150					155					160	
Arg	Lys	His	Thr	Asn	Cys	Ser	Ser	Leu	Gly	Leu	Leu	Leu	Ile	Gln	Lys	
				165					170						175	
Gly	Asn	Ala	Thr	His	Asp	Asn	Val	Cys	Ser	Gly	Asn	Arg	Glu	Ala	Thr	
			180					185					190			
Gln	Asn	Cys	Gly	Ile	Asp	Val	Thr	Leu	Cys	Glu	Glu	Ala	Phe	Phe	Arg	
			195				200					205				

<210> 134
<211> 224
<212> PRT
<213> Rattus rattus

<400> 134

Met	Gly	Ala	Gly	Ala	Thr	Gly	Arg	Ala	Met	Asp	Gly	Pro	Arg	Leu	Leu	
1				5					10					15		

Leu Leu Leu Leu Leu Gly Val Ser Leu Gly Gly Ala Lys Glu Ala Cys
20 25 30
Pro Thr Gly Leu Tyr Thr His Ser Gly Glu Cys Cys Lys Ala Cys Asn
35 40 45
Leu Gly Glu Gly Val Ala Gln Pro Cys Gly Ala Asn Gln Thr Val Cys
50 55 60
Glu Pro Cys Leu Asp Ser Val Thr Phe Ser Asp Val Val Ser Ala Thr
65 70 75 80
Glu Pro Cys Lys Pro Cys Thr Glu Cys Val Gly Leu Gln Ser Met Ser
85 90 95
Ala Pro Cys Val Glu Ala Asp Asp Ala Val Cys Arg Cys Ala Tyr Gly
100 105 110
Tyr Tyr Gln Asp Glu Thr Thr Gly Arg Cys Glu Ala Cys Arg Val Cys
115 120 125
Glu Ala Gly Ser Gly Leu Val Phe Ser Cys Gln Asp Lys Gln Asn Thr
130 135 140
Val Cys Glu Glu Cys Pro Asp Gly Thr Tyr Ser Asp Glu Ala Asn His
145 150 155 160
Val Asp Pro Cys Leu Pro Cys Thr Val Cys Glu Asp Thr Glu Arg Gln
165 170 175
Leu Arg Glu Cys Thr Arg Trp Ala Asp Ala Glu Cys Glu Glu Ile Pro
180 185 190
Gly Arg Trp Ile Thr Arg Ser Thr Pro Pro Glu Gly Ser Asp Ser Thr
195 200 205
Ala Pro Ser Thr Gln Glu Pro Glu Ala Pro Pro Glu Gln Asp Leu Ile
210 215 220

<210> 135

<211> 205

<212> PRT

<213> Rattus rattus

<400> 135

Met Tyr Val Trp Val Gln Gln Pro Thr Ala Phe Leu Leu Leu Gly Leu
1 5 10 15
Ser Leu Gly Val Thr Val Lys Leu Asn Cys Val Lys Asp Thr Tyr Pro
20 25 30
Ser Gly His Lys Cys Cys Arg Glu Cys Gln Pro Gly His Gly Met Val
35 40 45

Ser Arg Cys Asp His Thr Arg Asp Thr Val Cys His Pro Cys Glu Pro
50 55 60

Gly Phe Tyr Asn Glu Ala Val Asn Tyr Asp Thr Cys Lys Gln Cys Thr
65 70 75 80

Gln Cys Asn His Arg Ser Gly Ser Glu Leu Lys Gln Asn Cys Thr Pro
85 90 95

Thr Glu Asp Thr Val Cys Gln Cys Arg Pro Gly Thr Gln Pro Arg Gln
100 105 110

Asp Ser Ser His Lys Leu Gly Val Asp Cys Val Pro Cys Pro Pro Gly
115 120 125

His Phe Ser Pro Gly Ser Asn Gln Ala Cys Lys Pro Trp Thr Asn Cys
130 135 140

Thr Leu Ser Gly Lys Gln Ile Arg His Pro Ala Ser Asn Ser Leu Asp
145 150 155 160

Thr Val Cys Glu Asp Arg Ser Leu Leu Ala Thr Leu Leu Trp Glu Thr
165 170 175

Gln Arg Thr Thr Phe Arg Pro Thr Thr Val Pro Ser Thr Thr Val Trp
180 185 190

Pro Arg Thr Ser Gln Leu Pro Ser Thr Pro Thr Leu Val
195 200 205

<210> 136
<211> 191
<212> PRT
<213> Rattus rattus

<400> 136

Met Gly Asn Asn Cys Tyr Asn Val Val Val Ile Val Leu Leu Leu Val
1 5 10 15

Gly Cys Glu Lys Val Gly Ala Val Gln Asn Ser Cys Asp Asn Cys Gln
20 25 30

Pro Gly Thr Phe Cys Arg Lys Tyr Asn Pro Val Cys Lys Ser Cys Pro
35 40 45

Pro Ser Thr Phe Ser Ser Ile Gly Gly Gln Pro Asn Cys Asn Ile Cys
50 55 60

Arg Val Cys Ala Gly Tyr Phe Arg Phe Lys Lys Phe Cys Ser Ser Thr
65 70 75 80

His Asn Ala Glu Cys Glu Cys Ile Glu Gly Phe His Cys Leu Gly Pro
85 90 95

Gln Cys Thr Arg Cys Glu Lys Asp Cys Arg Pro Gly Gln Glu Leu Thr
100 105 110
Lys Gln Gly Cys Lys Thr Cys Ser Leu Gly Thr Phe Asn Asp Gln Asn
115 120 125
Gly Thr Gly Val Cys Arg Pro Trp Thr Asn Cys Ser Leu Asp Gly Arg
130 135 140
Ser Val Leu Lys Thr Gly Thr Thr Glu Lys Asp Val Val Cys Gly Pro
145 150 155 160
Pro Val Val Ser Phe Ser Pro Ser Thr Thr Ile Ser Val Thr Pro Glu
165 170 175
Gly Gly Pro Gly Gly His Ser Leu Gln Val Leu Thr Leu Phe Leu
180 185 190

<210> 137
<211> 54
<212> DNA
<213> Artificial Sequence
<220>
<221> misc_feature
<222> ()..()
<223> Oligonucleotide capable of hybridizing to human sequence.

<400> 137
tatggatgaa gaaacttctc atcagctgct gtgtgataaa tgtccgccgg gtac

54

<210> 138
<211> 284
<212> PRT
<213> Mus musculus

<400> 138

Cys Leu Lys His Arg Ser Cys Pro Pro Gly Ser Gly Val Val Gln Ala
1 5 10 15
Gly Thr Pro Glu Arg Asn Thr Val Cys Lys Lys Cys Pro Asp Gly Phe
20 25 30
Phe Ser Gly Glu Thr Ser Ser Lys Ala Pro Cys Ile Lys His Thr Asn
35 40 45
Cys Ser Thr Phe Gly Leu Leu Leu Ile Gln Lys Gly Asn Ala Thr His
50 55 60
Asp Asn Val Cys Ser Gly Asn Arg Glu Ala Thr Gln Lys Cys Gly Ile
65 70 75 80
Asp Val Thr Leu Cys Glu Glu Ala Phe Phe Arg Phe Ala Val Pro Thr

85					90					95					
Lys	Ile	Ile	Pro	Asn	Trp	Leu	Ser	Val	Leu	Val	Asp	Ser	Leu	Pro	Gly
			100					105					110		
Thr	Lys	Val	Asn	Ala	Glu	Ser	Val	Glu	Arg	Ile	Lys	Arg	Arg	His	Ser
		115					120					125			
Ser	Gln	Glu	Gln	Thr	Phe	Gln	Leu	Leu	Lys	Leu	Trp	Lys	His	Gln	Asn
	130					135					140				
Arg	Asp	Gln	Glu	Met	Val	Lys	Lys	Ile	Ile	Gln	Asp	Ile	Ala	Leu	Cys
145					150					155					160
Glu	Ser	Ser	Val	Gln	Arg	His	Leu	Gly	His	Ser	Asn	Leu	Thr	Thr	Glu
				165					170					175	
Gln	Leu	Leu	Ala	Leu	Met	Glu	Ser	Leu	Pro	Gly	Lys	Lys	Ile	Ser	Pro
			180					185					190		
Glu	Glu	Ile	Glu	Arg	Thr	Arg	Lys	Thr	Cys	Lys	Ser	Ser	Glu	Gln	Leu
	195						200					205			
Leu	Lys	Leu	Leu	Ser	Leu	Trp	Arg	Ile	Lys	Asn	Gly	Asp	Gln	Asp	Thr
	210					215					220				
Leu	Lys	Gly	Leu	Met	Tyr	Ala	Leu	Lys	His	Leu	Lys	Thr	Ser	His	Phe
225					230					235					240
Pro	Lys	Thr	Val	Thr	His	Ser	Leu	Arg	Lys	Thr	Met	Arg	Phe	Leu	His
				245					250					255	
Ser	Phe	Thr	Met	Tyr	Arg	Leu	Tyr	Gln	Lys	Leu	Phe	Leu	Glu	Met	Ile
			260					265					270		
Gly	Asn	Gln	Val	Gln	Ser	Val	Lys	Ile	Ser	Cys	Leu				
	275						280								

<210> 139
 <211> 380
 <212> PRT
 <213> Homo sapiens

<400> 139

Glu	Thr	Phe	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	Glu	Glu	Thr	Ser	His
1				5					10					15	
Gln	Leu	Leu	Cys	Asp	Lys	Cys	Pro	Pro	Gly	Thr	Tyr	Leu	Lys	Gln	His
			20					25					30		
Cys	Thr	Ala	Lys	Trp	Lys	Thr	Val	Cys	Ala	Pro	Cys	Pro	Asp	His	Tyr
		35					40				45				
Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	Leu	Tyr	Cys	Ser	Pro

50					55					60					
Val	Cys	Lys	Glu	Leu	Gln	Tyr	Val	Lys	Gln	Glu	Cys	Asn	Arg	Thr	His
65					70					75					80
Asn	Arg	Val	Cys	Glu	Cys	Lys	Glu	Gly	Arg	Tyr	Leu	Glu	Ile	Glu	Phe
				85					90					95	
Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Phe	Gly	Val	Val	Gln	Ala
			100					105					110		
Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Arg	Cys	Pro	Asp	Gly	Phe
		115					120					125			
Phe	Ser	Asn	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	Arg	Lys	His	Thr	Asn
	130					135					140				
Cys	Ser	Val	Phe	Gly	Leu	Leu	Leu	Thr	Gln	Lys	Gly	Asn	Ala	Thr	His
145					150					155					160
Asp	Asn	Ile	Cys	Ser	Gly	Asn	Ser	Glu	Ser	Thr	Gln	Lys	Cys	Gly	Ile
				165					170					175	
Asp	Val	Thr	Leu	Cys	Glu	Glu	Ala	Phe	Phe	Arg	Phe	Ala	Val	Pro	Thr
			180					185					190		
Lys	Phe	Thr	Pro	Asn	Trp	Leu	Ser	Val	Leu	Val	Asp	Asn	Leu	Pro	Gly
		195					200					205			
Thr	Lys	Val	Asn	Ala	Glu	Ser	Val	Glu	Arg	Ile	Lys	Arg	Gln	His	Ser
		210					215				220				
Ser	Gln	Glu	Gln	Thr	Phe	Gln	Leu	Leu	Lys	Leu	Trp	Lys	His	Gln	Asn
225					230					235					240
Lys	Ala	Gln	Asp	Ile	Val	Lys	Lys	Ile	Ile	Gln	Asp	Ile	Asp	Leu	Cys
				245					250					255	
Glu	Asn	Ser	Val	Gln	Arg	His	Ile	Gly	His	Ala	Asn	Leu	Thr	Phe	Glu
			260					265					270		
Gln	Leu	Arg	Ser	Leu	Met	Glu	Ser	Leu	Pro	Gly	Lys	Lys	Val	Gly	Ala
		275					280					285			
Glu	Asp	Ile	Glu	Lys	Thr	Ile	Lys	Ala	Cys	Lys	Pro	Ser	Asp	Gln	Ile
	290					295					300				
Leu	Lys	Leu	Leu	Ser	Leu	Trp	Arg	Ile	Lys	Asn	Gly	Asp	Gln	Asp	Thr
305					310					315					320
Leu	Lys	Gly	Leu	Met	His	Ala	Leu	Lys	His	Ser	Lys	Thr	Lys	His	Phe
				325					330					335	
Pro	Lys	Thr	Val	Thr	Gln	Ser	Leu	Lys	Lys	Thr	Ile	Arg	Phe	Leu	His
			340					345					350		

Ser Phe Thr Met Tyr Lys Leu Tyr Gln Lys Leu Phe Leu Glu Met Ile
355 360 365

Gly Asn Gln Val Gln Ser Val Lys Ile Ser Cys Leu
370 375 380

<210> 140
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion analogue.

<400> 140
tggaccaccc agaagtacct tcattatgac 30

<210> 141
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion analogue.

<400> 141
gtcataatga aggtacttct ggggtggtcca 30

<210> 142
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion analogue.

<400> 142
ggaccacca gcttcattat gacgaagaaa c 31

<210> 143
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature

<222> ()..()
<223> PCR primer for deletion analogue.

<400> 143
gtttcttcgt cataatgaag ctgggtggtc c 31

<210> 144
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion analogue.

<400> 144
gtggaccacc caggacgaag aaacctctc 29

<210> 145
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion analogue.

<400> 145
gagaggtttc ttcgtcctgg gtggtccac 29

<210> 146
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 146
cgtttcctcc aaagttcctt cattatgac 29

<210> 147
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 147
gtcataatga aggaactttg gaggaaacg 29

<210> 148
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 148
ggaaacggttt cctgcaaagt accttcatta tg 32

<210> 149
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 149
cataatgaag gtactttgca ggaaacggtt cc 32

<210> 150
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 150
cacgcaaaag tcgggaatag atgtcac 27

<210> 151
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 151
gtgacatcta ttcccgactt ttgcgtg 27

<210> 152
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 152
caccctgtcg gaagaggcct tcttc 25

<210> 153
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 153
gaagaaggcc tcttccgaca gggtg 25

<210> 154
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 154
tgacctctcg gaaagcagcg tgca 24

<210> 155
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 155
tgcacgctgc tttccgagag gtca 24

<210> 156
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 156
cctcgaaatc gagcgagcag ctcc 24

<210> 157
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 157
cgatttcgag gtctttctcg ttctc 25

<210> 158
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 158
ccgtgaaaat aagctcgta taactaggaa tgg 33

<210> 159
<211> 33
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for mutant analogue.

<400> 159
ccattcctag ttataacgag cttattttca cgg 33

<210> 160
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 160
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 161
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 161
cctctctcga gtcaggtgac atctattcca cacttttgcg tggc 44

<210> 162
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 162
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 163
<211> 38
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 163
cctctctcga gtcaaggaac agcaaacctg aagaaggc 38

<210> 164
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 164
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 165
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 165
cctctctcga gtcactctgt ggtgagggtc gagtggcc 38

<210> 166
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 166
cctctgagct caagcttccg aggaccacaa tgaacaag 38

<210> 167
<211> 38
<212> DNA
<213> Artificial Sequence

<220>

<221> misc_feature
<222> ()..()
<223> PCR primer for deletion mutant.

<400> 167
cctctctcga gtcaggatgt tttcaagtgc ttgagggc

38

<210> 168
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Encoded by oligonucleotide duplex used in vector formation.

<400> 168

Met Lys His His His His His His His Ala Ser Val Asn Ala Leu Glu
1 5 10 15